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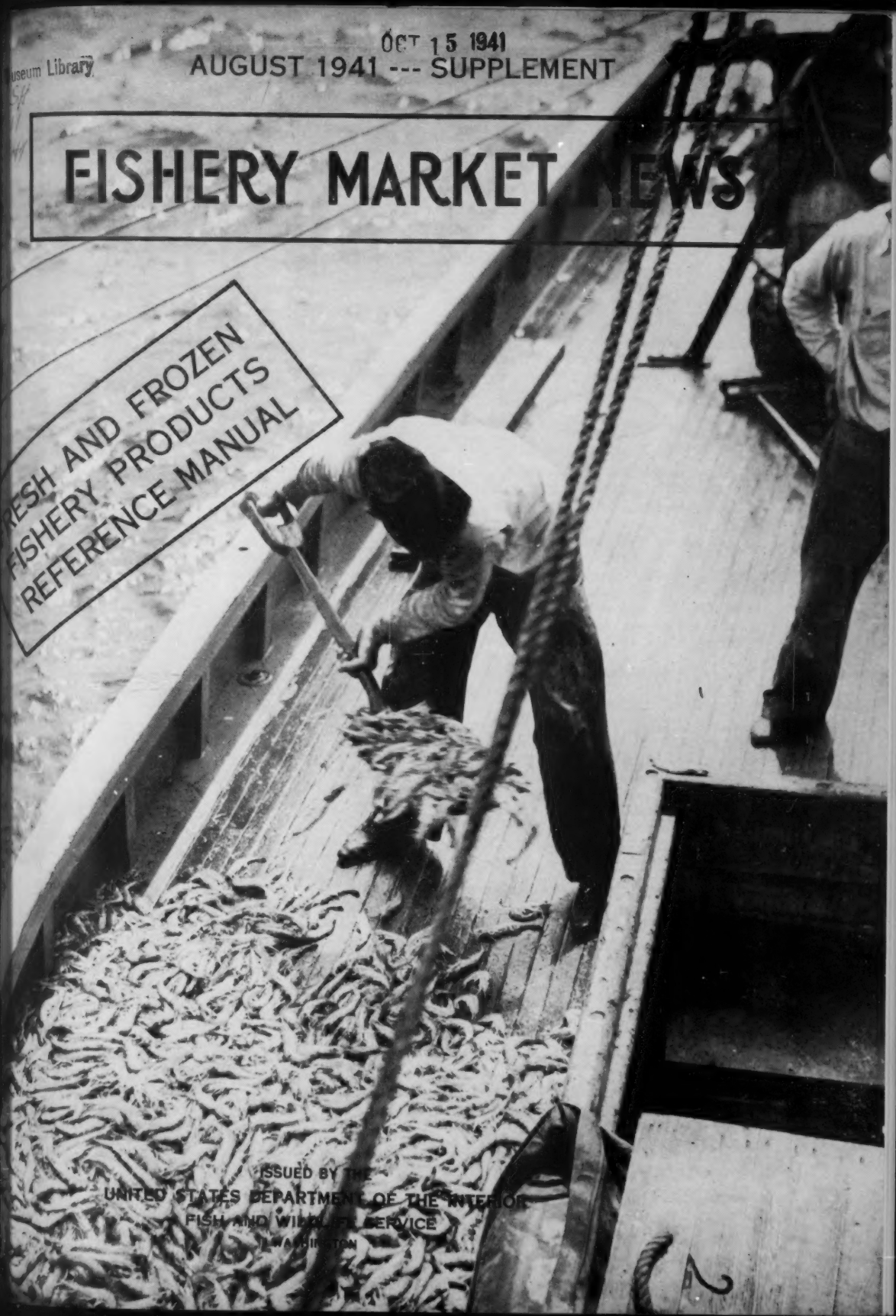
FISHERY MARKET NEWS

FRESH AND FROZEN FISHERY PRODUCTS REFERENCE MANUAL



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Applications for FISHERY MARKET NEWS, which is delivered free to members of the fishery industry and allied interests, should be addressed to the Director, Fish and Wildlife Service, United States Department of the Interior, Washington, D. C.

The Service assumes no responsibility for the accuracy of material from outside sources.

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Cover page - Shovelling shrimp from the deck of a Gulf of Mexico trawler into hold.

FISHERY MARKET NEWS

A REVIEW OF CONDITIONS AND TRENDS OF THE COMMERCIAL FISHERIES

August 1941 - Supplement | Washington, D. C. | Vol. 3, No. 8a

Fresh and Frozen Fishery Products Reference Manual

This manual has been prepared primarily for use by Purchasing Officers and Mess Sergeants of the U. S. Army in an effort to aid them and the fishery industry in supplying our defense forces with fresh and frozen fishery products.

The desirability of such a manual was suggested at meetings of a Committee appointed to offer recommendations for the revision of "Federal Specifications for Fish; Fresh".

The manual was prepared by A. W. Anderson, Chief, Market News Section of the Division of Fishery Industries. Much of the material is from his study for a fresh and frozen fishery products buying guide. Other information has been derived from U. S. Fish and Wildlife Service data, particularly Fishery Market News Service summaries, Practical Fish Cookery, and the Division of Fishery Industries annual report. Information also was obtained from trade sources, Proximate Composition of American Food Materials - Department of Agriculture Circular No. 549, and Fish Bulletin No. 57 of the California Division of Fish and Game.

Acknowledgment is made of suggestions and criticisms offered by the other members of the Committee--Chas. W. Triggs, Chairman of the Fishery Advisory Committee; E. H. Cooley, Manager of the Massachusetts Fisheries Association, Inc.; and L. T. Hopkinson, Principal Commodity Specialist, Tariff Commission.

In most instances the terms "fish" and "fishery products" have been used throughout the manual in the broad sense to include "fin-fish" as well as "shellfish".

- 0 -

FOOD VALUE of FISHERY PRODUCTS

Fishery products provide a variety and quality of nutritive factors found in few foods. They are excellent sources of highly digestible proteins, are rich in vitamins, and contain minerals both in quantity and variety. Some fish also contain considerable fat.

Proteins are important for the building of muscle and other body tissues. They are an essential foundation of all diets for man or animals and are necessary in any diet for normal growth and maintenance of life. They are composed of what might be called little building stones known as amino acids. The food value of different proteins depends on the variety and content of these amino acids. Fish proteins are complete; that is, they contain all of the amino acids required for the growth and maintenance of the human body. The digestibility of fish proteins is exceptional, ranging from 85 to 95 percent. The biological value or food value also is very high.

Minerals are essential to the performance of certain specific functions in the body. For instance, calcium and phosphorus are necessary for the development, growth, and maintenance of bones and teeth. Iron and copper are required in the treatment and prevention of nutritional anemia. Iodine stimulates the proper functioning of the thyroid gland. Magnesium is essential for the growth of bone and is necessary for the proper metabolism of the tissues. In general, fishery products are excellent sources of phosphorous, iron, copper, iodine and magnesium. Shellfish and canned fish (not boned) are quite satisfactory sources of calcium.

Marine fishery products are particularly notable for their iodine content, containing from 50 to 200 times as much iodine as foods from other sources. This fact is of great importance to inhabitants of those areas of the United States where there is great prevalence of goiter due to the deficiency of iodine in the foods from the soils of those regions. Deficiency diseases, such as goiter, rickets, and anemia, are much less prevalent in coastal fishery communities where fishery products constitute a considerable proportion of the diet.

Vitamins are important for growth and the maintenance of general well being. Some fishery products are particularly rich in vitamins; for example, fish liver oils are important sources of vitamins A and D. In fatty fish the body oils also contain these vitamins. The fillets from fatty fish such as mackerel and salmon contain about 200 international units of vitamin A and 600 international units of vitamin D per 100 grams. In addition, fresh and frozen fish contain about 40 international units of thiamin, 300 micrograms of riboflavin and 4000 micrograms of nicotinic acid per 100 grams. Shellfish contain somewhat greater quantities of these water-soluble vitamins. Average portions of fish will supply about 10 percent of the daily allowance of vitamin A, more than enough of vitamin D, about 15 percent of thiamin, and from 20 to 70 percent of the daily allowance of riboflavin and nicotinic acid. Some fish also contain vitamin C.

Fat in fish is as easily and completely digested as fats in other foods. Fatty fish have high energy value due to the fat content.

FRESH and FROZEN

Fresh and Frozen Fishery Products are equally good.

The freezing process makes no appreciable change in appearance, quality or food value.

Fresh varieties usually are produced in abundance only at certain seasons and are most plentiful and reasonable in price during these periods. Except for some species that ship very well, they are most available in and near producing areas.

Frozen varieties of the more important species generally are obtainable in quantity at reasonable prices throughout the year and are distributed over very wide areas.

The freezing of fishery products has been developed to a very high degree by the fishing industry in order to preserve the heavy seasonal production, maintain a constant supply of excellent food at reasonable prices, and facilitate the shipment of fishery products from the landing ports to inland marketing centers.

FAT CONTENT

The fat content of fishery products varies with the variety, and the amount of fat in the fatter varieties changes with the season.

Most fin-fish are low or fairly low in fat content. Fin-fish classed as low in fat content approximate about ½ percent fat in the edible portion; those classed as fairly low average about 2½ percent; while the fatter and more variable varieties may contain up to 20 percent or more.

All shellfish are low or fairly low in fat content.

Fat fish generally are favored for baking and lean fish for boiling, steaming or chowders. Either fat or lean fish may be broiled, deep fat fried, or pan-fried.

The fat content of fatty fish is as easily and completely digested as fats in other foods.

FISHERY MARKET NEWS SERVICE

The Division of Fishery Industries of the U. S. Fish and Wildlife Service has established 6 regional Fishery Market News Service offices which collect and compile information on production, shipments, receipts, supply, demand, prices, and cold-storage movements and holdings of fishery products in the most important fishing ports and fresh and frozen fish markets in the country.

This information is disseminated by means of

1. Daily mimeographed reports.
2. Monthly and annual mimeographed summaries.
3. Market radio broadcasts.
4. Consumer radio broadcasts.

The reports and summaries may be obtained without charge by addressing a request to the office issuing the publication desired.

Additional fishery information may be obtained from the Marketing Specialists in charge of the regional offices.

The locations of the offices are listed below. Mail should be addressed to "U. S. Fish and Wildlife Service, Fishery Market News Service" and the proper street and city.

Address	Phone	In Charge
155 John Street NEW YORK, New York	BEekman 3-4382	W. H. Dumont
253½ Northern Avenue BOSTON, Massachusetts	LIBerty 5133	B. E. Lindgren
200 N. Jefferson Street CHICAGO, Illinois	SEEley 7898	E. C. Hinsdale
417 Bell Street Terminal SEATTLE, Washington	MAin 0740	V. J. Samson
309 Duval Building JACKSONVILLE, Florida	5-5971	S. C. Denham
1100 Decatur Street NEW ORLEANS, Louisiana	MAgnolia 1674	C. E. Peterson

Market radio broadcasts are summarized versions of the daily mimeographed reports and, except for Seattle data, are broadcast from a local station. Broadcast information is listed in the following tabulation:

Report	Station	Location	Frequency kc.	Time a. m.	Time p. m.
New York	WOR	Newark, N. J.	710	6:10	-
Boston	WHDH	Boston, Mass.	850	10:30	4:15
Chicago	WCFL	Chicago, Ill.	1000	6:15	-
Seattle	KGBU	Ketchikan, Alaska	930	..	9:00 12:00
	KINY	Juneau, Alaska	1460	-	9:00
Jacksonville	WJAX	Jacksonville, Fla.	930	7:45	-
New Orleans	WWL	New Orleans, La.	870	5:05	-

Consumer radio broadcasts consist of brief announcements used 4 times weekly--Monday, Wednesday, Thursday and Saturday. They describe "good buys" in fishery products at local markets, suggest methods of utilizing and preparing fish, and offer general fishery information. These broadcasts are carried by from 10 to 20 stations in the marketing area tributary to each of the 6 cities in which Fishery Market News Service offices are located.

Lists of the stations carrying consumer radio broadcasts may be obtained from the Fishery Market News Service offices, or mimeographed copies of the scripts will be sent upon request. The latter are mailed the day before the broadcast.

MARKET DEVELOPMENT

Market development specialists of the U. S. Fish and Wildlife Service are stationed at several interior cities. These Fishery Marketing Specialists may be contacted for fishery information at the following addresses:

Francis C. Randlett
438-J New Post Office Bldg.
Pittsburgh, Pennsylvania

Cyrus H. Chilton
Palace Hotel
Cincinnati, Ohio

John J. Murray
P. O. Box 1044
Columbus, Ohio

CUTS of FISH

Fresh and frozen fishery products may be purchased in a variety of cuts or forms, the more important of which are:

Fin-fish		Shellfish
Whole or round	Fillets:	Live in shell
Drawn	Single	Shucked
Dressed	Butterfly	Headless
Pan-dressed	Sticks	Cooked meat
Steaks		

Since few kinds are marketed in all these ways, a better and more economical product generally is assured if one of the usual commercial forms is requested. Fishery dealers will be glad to recommend and prepare fish in the form best suited for your uses.

WHOLE or ROUND

Fish marketed whole or round in the form they come from the water usually are the types that keep as well or better without dressing, or are small fish, or the small sizes of certain varieties.

Before cooking whole or round fish they usually must be scaled, eviscerated and beheaded. The fins may be removed if desired and they either are split or cut into serving portions. Some small fish frequently are cooked with only the entrails removed.

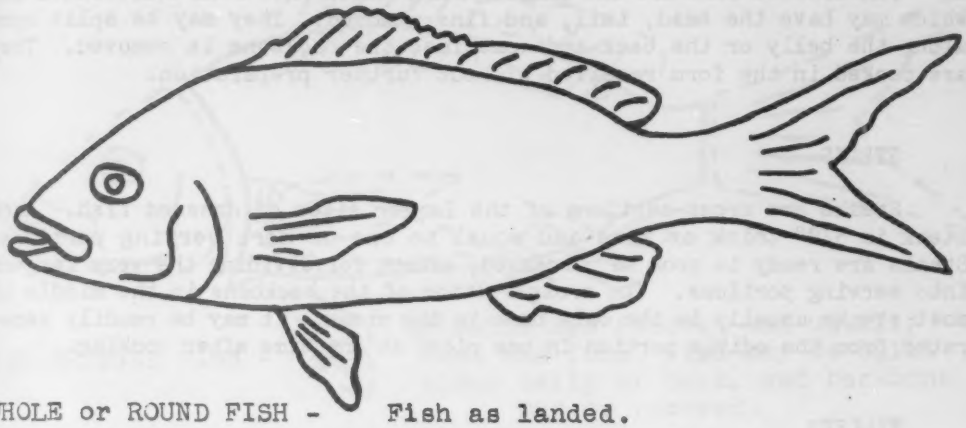
DRAWN

Many varieties of fish are marketed drawn or with only the entrails removed. To prepare these for cooking, they generally are scaled and beheaded. The fins are removed, if desired, and they are split or cut into serving portions. Small drawn fish or larger sizes intended for baking may be cooked in the form purchased.

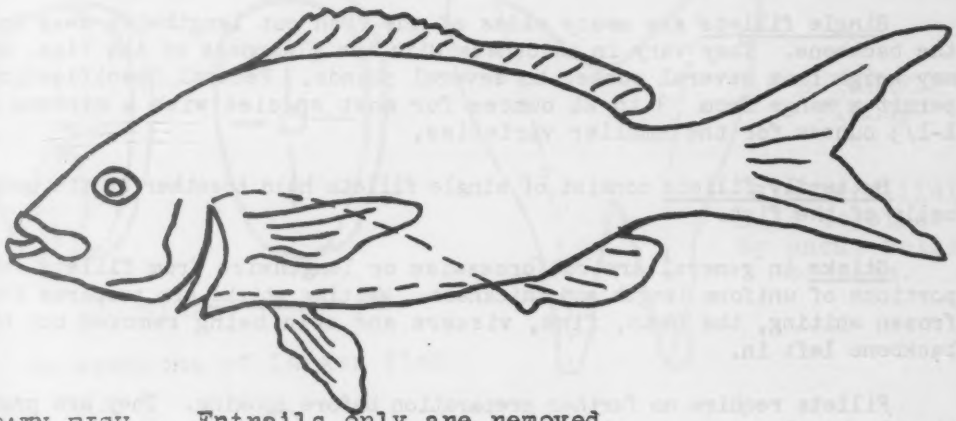
DRESSED

Dressed fish are eviscerated with the head and tail and usually the fins removed. Very large dressed fish sometimes are marketed in chunks or pieces. The smaller sizes are ready for cooking as purchased or may be split open. The larger sizes may be baked whole, but frequently are split or cut into steaks or similar serving portions.

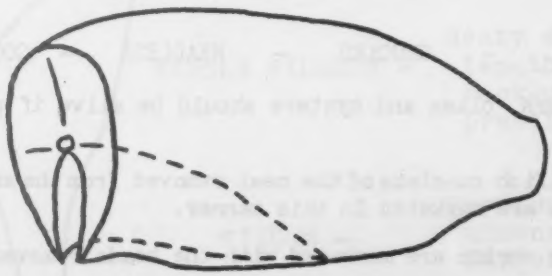
Cuts of Fish



WHOLE or ROUND FISH - Fish as landed.



DRAWN FISH - Entrails only are removed.



DRESSED FISH - Entrails, head and tail, and usually fins are removed.

Cuts of Fish

PAN-DRESSED

Pan-dressed fish are the smaller sizes which have been eviscerated and which may have the head, tail, and fins removed. They may be split open along the belly or the back and sometimes the backbone is removed. They are cooked in the form received without further preparation.

STEAKS

Steaks are cross-sections of the larger sizes of dressed fish. Each steak is 5/8" thick or more and equal to one or more serving portions. Steaks are ready to cook as purchased, except for dividing the very largest into serving portions. The cross-section of the backbone in the middle of most steaks usually is the only bone in the steak. It may be readily separated from the edible portion in one piece at any time after cooking.

FILLETS

Single fillets are meaty sides of the fish cut lengthwise away from the backbone. They vary in thickness with the plumpness of the fish, and may weigh from several ounces to several pounds. Federal Specifications permit a range from 3 to 24 ounces for most species with a minimum of 1-1/3 ounces for the smaller varieties.

Butterfly fillets consist of single fillets held together by the uncut belly of the fish.

Sticks in general are cut crosswise or lengthwise from fillets into portions of uniform length and thickness. Whiting sticks are prepared from frozen whiting, the head, fins, viscera and skin being removed but the backbone left in.

Fillets require no further preparation before cooking. They are practically boneless.

LIVE IN SHELL - SHUCKED - HEADLESS - COOKED MEAT

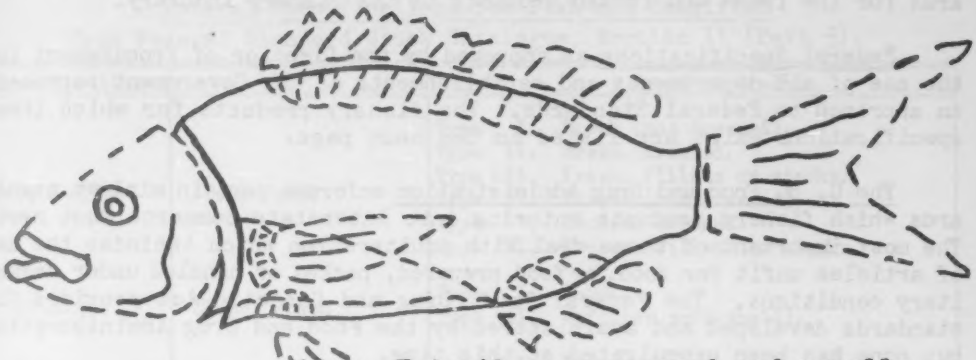
Crabs, lobsters, clams and oysters should be alive if purchased fresh in the shell.

Shucked shellfish consists of the meat removed from the shells. Oysters, clams and scallops are marketed in this manner.

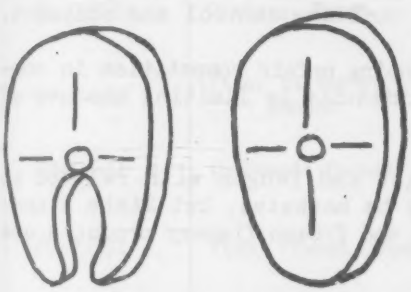
In most areas shrimp are marketed with the heads removed.

Cooked meat is the edible portion "picked" from cooked shellfish, mostly crab, shrimp and lobsters. The cooked meat is perishable since it is packaged in containers not further processed with heat.

Cuts of Fish

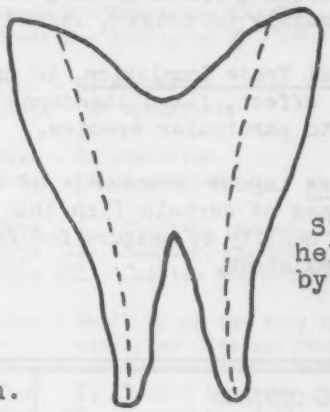


PAN-DRESSED FISH - Entrails are removed and usually head and fins. Fish may be split along belly or back, and backbone may be removed.



STEAKS

Cross-sections of larger fish.



BUTTERFLY FILLET -- Single fillets held together by uncut belly of fish.

SINGLE FILLETS - Meaty side of fish cut lengthwise away from backbone. Fillets are practically boneless.

STICKS - Portions of uniform dimensions cut from larger fillets

STANDARDS

At present there are few regulations which prescribe detailed standards for the fresh and frozen products of the fishery industry.

Federal Specifications as approved by the Director of Procurement for the use of all departments and establishments of the Government represent an approach to Federal Standards. The fishery products for which these specifications exist are listed on the next page.

The U. S. Food and Drug Administration enforces certain minimum standards which fishery products entering into interstate commerce must meet. The most important of these deal with adulteration which includes the use of articles unfit for food, or food prepared, packed or handled under unsanitary conditions. The Federal Food, Drug and Cosmetic Act provides for standards developed and administered by the Food and Drug Administration but none has been promulgated at this time.

The U. S. Public Health Service is particularly interested in shellfish. Through cooperative arrangements this Agency endorses shipper's certificates issued by States meeting the minimum requirements it specifies. These pertain mainly to origin, labeling, sanitary control and shipment.

The Federal Trade Commission, in preventing unfair competition in commerce, has, in effect, fixed standards of identity by limiting the use of certain names to particular species.

Most States impose standards of weight and length with respect to the minimum sizes of certain fish that may be marketed, but State standards of either quality or measure for fresh and frozen fishery products are virtually non-existent.

PACIFIC OYSTERS		GULF AND ATLANTIC SHRIMP	
Grade*	No. per Gallon	Size*	No. per Pound
AA	under 90	Jumbo	under 25
A	90 to 115	Large	25 to 30
B	116 to 140	Large medium	28 to 30
C	141 to 160	Medium	30 to 35
D	161 and over	Small	35 up

*Seattle Fishery Dealers

*Headless - N. Y. Fishery Dealers

Standards

Federal Specifications for Fish and Shellfish
from Federal Standard Stock Catalogue, Section IV (Part 5).

Specification	For	Types or Grades
PP-F-381b	Fish; Fresh	Type I. Fresh (not dressed). Type II. Fresh, dressed. Type III. Fresh, fillets or steaks. Type IV. Frozen (not dressed). Type V. Frozen, dressed. Type VI. Frozen, fillets or steaks.
PP-C-401	Clams; Fresh	Type I. Hard. Type II. Soft (or soft-shell).
PP-C-656	Crabmeat; Fresh	Type I. Lump. Type II. Flake. Type III. Claw.
PP-O-956a	Oysters; Fresh	Grade A - Averaging 150-200 oysters per gal. Grade B - Averaging 200-250 oysters per gal. Grade C - Averaging 250-300 oysters per gal.
PP-F-401	Fish; Salted or Smoked	Type - As specified. Grade - As specified.
PP-C-651	Crabmeat; Canned	Type - As specified. Grade - As specified.
PP-F-371	Fish; Flaked, Canned	Type I. Codfish, canned. Type II. Haddock, canned. Type III. Codfish and haddock, canned.
PP-O-951 and Amendment 1	Oysters; Canned	Type - Shall be of the type known commercially as Cove and Pacific oysters.
PP-S-51b	Sardines (Domestic); Canned	Type I. Packed in olive oil. Type II. Packed in edible vegetable oil. Type III. Packed in mustard. Type IV. Packed in tomato sauce. Type V. Soused. Type VI. Natural.
PP-S-31	Salmon; Canned	Type A. Chinook (king or spring). Type B. Red (blueback or red (sockeye)). Type C. Coho (medium red or silver). Type D. Pink. Type E. Chum.
PP-S-311	Shrimp; Canned	Type I. Wet pack. Type II. Dry pack.
PP-T-771	Tuna Fish; Canned	Type - As specified. Grade - As specified.

Above specifications may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5¢ each.

Standards

PACIFIC HALIBUT GRADES and SIZES

Seattle Fish Exchange Grades		Usual Trade Sizes	
Heads on, eviscerated *		Headless, eviscerated	
No. 1	Lbs.	Size	Lbs.
First class	11½ to 70	Chicken	5 to 9
No. 2		Medium	10 to 20 20 to 40 40 to 60
First class	6 to 11½		
First class	over 70	Large	60 to 80
Not first class	11½ to 70	Whale	over 80

* Must be purchased "heads on" with 12 per cent allowed for heads and 2 per cent for ice and slime.

PACIFIC SALMON GRADES and SIZES

Seattle Salmon Exchange Grades *		Usual Trade Sizes	
Heads on, eviscerated		Headless, eviscerated	
Chinook or king		Trade sizes of salmon are not well standardized. The approximate range of weights is as follows:	
No. 1			
Large red	14 lbs. and over		
Small red	not under 26 in. and up to 14 lbs.	Chinook or king	5 - 30
White	26 inches and up	Chum or fall	5 - 10
		Pink	3 - 5
Silver			
No. 1	no size limit	Silver	5 - 12

* No. 2 grade fish are the same size and weight as No. 1 but are bruised, scarred, or show signs of softening.

Standards

GRADES of FRESH FISH recognized by the NEW ENGLAND FISH EXCHANGE

Species	Weight Lbs.
COD	
Extra large	over 25
Large	10 - 25 inclusive
Market	over 2½ to 10
Scrod	1½ to 2½ inclusive
CUSK	
Large	over 3
Scrod	1½ to 3 inclusive
FLOUNDERS	
Blackback	¾ and over
Dab	1 and over
Gray sole	2 and over
Lemon sole	3 and over
Yellowtail	1 and over
HADDOCK	
Large	over 2½
Scrod	1½ to 2½ inclusive
HAKE	
Large	6 and over
Small	over 2½ to 6
Snapper	1½ to 2½ inclusive

Species	Weight Lbs.
HALIBUT (Atlantic)	
Medium white	over 12 to 60
Medium gray	over 12 to 60
Large	over 60 to 125
Extra large	over 125
Chicken	over 7 to 12
Snapper	under 7
MACKEREL	
Large	2¼ and over
Medium	1½ to 2¼
Small	1 to 1½
Tinker	½ to 1
Tack	under ½
POLLOCK	
Large	4 and over
Scrod	1½ to 4
SWORDFISH	
Large	over 110
Babies	110 and under
SCALLOPS, SEA	
Gallon	9

Note.--All groundfish must be gilled from April 1 to November 1.

LAKE TROUT and WHITEFISH GRADES and SIZES - CHICAGO FISHERY DEALERS

LAKE TROUT	Weight Lbs.
Heads on, eviscerated	
No. 1	1½ to 4
Medium	4 to 8
Large	8 up
Headless, eviscerated	
-	8 up

WHITEFISH	Weight Lbs.
Heads on, eviscerated	
No. 1	1½ to 3
Medium jumbo	3 to 4
Jumbo	4 up
Few whitefish will weigh over 6 lbs.	

PURCHASING FISHERY PRODUCTS

Ask for Information.

To determine when fresh and frozen varieties of fishery products are or will be available in good supply and at reasonable prices consult -

1. Local dealers in fishery products.
2. Fishery Market News Service.
   a. Daily market news reports.
   b. Daily market and consumer radio broadcasts.
   c. Fishery marketing specialists.
3. Market Development specialists.

Fresh and Frozen Fish are Equally Good.

Use them interchangeably to provide variety at reasonable prices.

Buy Fresh Fish in the Season of Good Supply.

Then they are cheapest and best. Frozen fish usually are in season all year.

Purchase Local Varieties of Fish when the Supply is Ample.

This assures fresh fish, usually at low cost, and saves time and transportation.

Try Inexpensive, Abundant and Less Well Known Varieties.

Frequently they are as desirable as more costly and better known species. The demand for some varieties may increase the price to a point where less well known varieties are much better values.

Order Sizes which are being Produced in Quantity.

Some sizes are available in abundance only at certain times of the year. At other times they are scarce and expensive.

The Largest Sizes of Fish are not always the Best.

Frequently the smaller sizes are cheaper, as easy to prepare, and more tasty. Plump fish generally are preferable to thin fish of the same variety.

Take Advantage of the Various Cuts of Fish.

If it is necessary to eliminate waste and save time in preparation and cooking, purchase fin-fish as fillets, steaks, sticks or pan-dressed. Buy shellfish shucked or as cooked meat.

Buy the Kind that Best Suits your Needs.

Dealers will be glad to recommend suitable varieties and will prepare them in the form you request.

Provide Adequate Servings.

Servings of fresh and frozen fishery products generally are based on portions ranging from 1/3 to 1/2 pound per person.

Follow Commercial Practices when Possible.

Deviation from commercial practices with respect to unusual cuts of fish and special wrapping or containers frequently increases costs and causes delays.

Beware of "Low" or "Bargain" Prices.

It seldom is advisable to purchase perishables such as fresh or frozen fishery products just because the price quoted is extremely low or a "bargain", unless adequate inspection for condition and quality is available.

NAMES, PRODUCING STATES, WEIGHT & USUAL MARKET FORMS

U.S. Fish and Wildlife Service and scientific names		Producing States	Average weight	Usual Market Forms					
				Round	Drawn	Dressed	Pan-drsd	Steaks	Fillets
SALT-WATER FISH			Lbs.						
Bluefish	Pomatomus saltatrix	Atlantic & Gulf	1 - 7	x*	x	-	-	-	-
Blue runner	Caranx crysos	Florida	½ - ¾	-	x	-	-	-	-
Butterfish	Poronotus triacanthus	Middle Atlantic Chesapeake New England	¼ - 1¼	x	-	-	x	-	-
Cod	Gadus callarias G. macrocephalus	New England Middle Atlantic Pacific Coast	10	-	x	x	-	x	x**
Croaker	Micropogon undulatus	Atlantic & Gulf	½ - 1½	x	-	-	x	-	x
Cusk	Brosme brosme	New England	5	-	x	-	-	x	x**
Drum, red	Sciaenops ocellatus	Gulf & South Atlantic Chesapeake	2 - 25	x*	x	-	x	-	x
Flounders:									
Blackback (Winter)	Pseudopleuronectes americanus	New England Middle Atlantic Chesapeake Bay	¾ - 2						
Dab (Sandy dab)	Hippoglossoides platessoides	New England Middle Atlantic	¾ - 2½						
Fluke (Summer)	Paralichthys dentatus	Atlantic	2 - 12	x	-	x	x	x	x
Gray sole	Glyptocephalus cynoglossus	New England Middle Atlantic	¾ - 4						
Lemon sole	Pseudopleuronectes dignabilis	New England Middle Atlantic	2½ - 10						

U.S. Fish and Wildlife Service and scientific names		Producing States	Average weight	Usual Market Forms					
				Round	Drawn	Dressed	Pan-drsd	Steaks	Fillets
SALT-WATER FISH--Contd.			Lbs.						
Flounders--Contd.									
Southern	Paralichthys lethostigmus	Chesapeake Bay South Atlantic & Gulf	2 - 12						
Yellowtail (Rusty dab)	Limanda ferruginea	New England Middle Atlantic	¾ - 2	x	-	x	x	x	x
"California halibut"	Paralichthys californicus	California	10 - 15						
"Sole"	Pleuronectidae sp.	Pacific	½ - 3						
Groupers	Epinephelus sp. Mycteroperca sp.	Gulf & South Atlantic	5 - 15	-	x	x	-	x	x
Haddock	Melanogrammus aeglefinus	New England Middle Atlantic	3 - 6	x*	x	-	-	-	x**
Hake	Urophycis species	New England Middle Atlantic	4	x	x	x	-	-	x**
Halibut	Hippoglossus hippoglossus	North Pacific North Atlantic	40	-	-	x	-	x	x
Kingfish (King mackerel)	Scomberomorus cavalla S. regalis	South Atlantic & Gulf	5 - 20	-	x	x	-	x	x
King whiting (Kingfish)	Menticirrhus sp.	South Atlantic Chesapeake Middle Atlantic	¾ - 3	x	-	-	x	-	x
"Lingcod"	Ophiodon elongatus	Pacific	5 - 20	-	-	x	-	-	x
Mackerel	Scomber scombrus	New England Middle Atlantic	½ - 2½	x	x	-	-	-	x

Names, Producing States, Weight & Usual Market Forms

U.S. Fish and Wildlife Service and scientific names		Producing States	Average weight	Usual Market Forms					
				Round	Drawn	Dressed	Pan-drsd	Steaks	Fillets
SALT-WATER FISH--Contd.			Lbs.						
Mullet	Mugil species	Gulf & South Atlantic	½ - 5	x	-	-	-	-	-
Pollock	Pollachius virens	New England Middle Atlantic	12	-	x	x	-	x	x**
Rockfishes	Sebastodes sp.	Pacific	2 - 5	-	-	x	-	-	x
Rosefish	Sebastes marinus	New England	1	x	-	-	-	-	x
Sablefish	Anaplopoma fimbria	Pacific	5 - 15	-	-	x	-	-	x
Salmon:									
Chinook	Oncorhynchus tschawytscha	Pacific	5 - 30						
Chum (Fall)	O. keta	North Pacific	5 - 10	-	x	x	-	x	x
Pink	O. gorbuscha	North Pacific	3 - 5						
Silver	O. kisutch	Pacific	5 - 12						
Scup (Porgy)	Stenotomus species	Atlantic	½ - 1½	x	-	-	x	-	x
Sea bass	Centropristes striatus	Atlantic	½ - 4	x	-	-	x	-	x
Sea trout:									
Gray	Cynoscion regalis	Atlantic	1 - 6	x*	x	-	x	-	x
Spotted	C. nebulosus	Gulf & South Atlantic Chesapeake	1 - 10	-	x	x	x	-	x
Shad	Alosa sapidissima	Atlantic & Pacific	1½ - 5	x	x	-	-	-	x
Smelt	Osmerus mordax Argentinidae sp.	New England Pacific	1/8 - 1	x	-	-	-	-	-

U.S. Fish and Wildlife Service and scientific names		Producing States	Average weight	Usual Market Forms					
				Round	Drawn	Dressed	Pan-drsd	Steaks	Fillets
SALT-WATER FISH--Contd.			Lbs.						
Snapper, red	Lutianus blackfordii	Gulf & South Atlantic	2 - 15	-	x	x	-	x	x
Spanish mackerel	Scomberomorus maculatus	Gulf & South Atlantic Chesapeake	1 - 4	x	x	x	x	-	x
Spot	Leiostomus xanthurus	South Atlantic Chesapeake Middle Atlantic	¼ - 1¼	x	-	-	x	-	-
Striped bass	Roccus saxatilis	Atlantic	2 - 15	x	-	-	-	-	x
Swordfish	Xiphias gladius	New England Middle Atlantic South Pacific	200	-	-	x	-	x	x
Tilefish	Lopholatilus chamaeleonticeps	Middle Atlantic New England	4 - 18	x*	x	x	-	-	-
Whiting	Merluccius bilinearis	New England Middle Atlantic	½ - 1½	x	x	x	x	-	x**
Wolffish	Anarhichas lupus	New England	8	-	x	x***	-	x	x
FRESH-WATER FISH									
Blue pike	Stizostedion vitreum glaucum	Great Lakes	¾ - 1	x	-	-	-	-	x
Buffalofish	Ictiobus species	Mississippi River	3 - 25	x	x	x	-	x	x
Carp	Cyprinus carpio	Mississippi River Great Lakes All Coasts	2 - 8	live	-	-	-	-	x
Smelt	Osmerus mordax Argentinidae sp.	New England Pacific	1/8 - 1	x	-	-	-	-	-

Names, Producing States, Weight & Usual Market Forms

U.S. Fish and Wildlife Service and scientific names		Producing States	Average weight	Usual Market Forms					
				Round	Drawn	Dressed	Pan-drsd	Steaks	Fillets
FRESH-WATER FISH--Contd.			Lbs.						
Catfish & bullheads	Ameiurus species Ictalurus species Leptops olivaris	Mississippi River All Coasts Great Lakes	1 - 40	x	-	x***	-	-	-
Lake herring	Leucichthys artedi	Great Lakes	1/3 - 1	x	x	-	-	-	x
Lake trout	Cristivomer namaycush	Great Lakes	1½ - 10	-	x	x	-	-	x
Sauger	Stizostedion canadense	Great Lakes	1 - 1½	x	-	-	-	-	x
Sheepshead	Aplodinotus grunniens	Mississippi River Great Lakes	1½ - 8	x	-	-	-	-	x
Smelt	Osmerus mordax	Great Lakes	10 - 20 per lb.	x	-	-	-	-	-
Suckers	Catostomidae sp.	Great Lakes Mississippi River	1½	x	x	x	-	-	x
Whitefish	Coregonus clupeiformis	Great Lakes	1½ - 6	x	x	x	-	-	x
Yellow perch	Perca flavescens	Great Lakes	½	x	-	-	-	-	x
Yellow pike	Stizostedion vitreum vitreum	Great Lakes	1½ - 10	x	-	x	-	-	x

* Usually smaller sizes only.
** Prepared in form of sticks also.
*** Dressed and skinned.

NOTE.--Frozen fish of most of the varieties listed usually are available throughout the year in the same market forms as fresh fish.

market forms as fresh fish.

U.S. Fish and Wildlife Service and scientific names		Producing States	Live in Shell	Shucked	Headless	Cooked meat
SHELLFISH						
Clams: Hard	Venus mercenaria Venus mortoni	Atlantic	1 bushel yields 5 to 16 lbs. of meats	100 to 250 per gal.	-	-
Hard	Saxidomus nuttall	Pacific	Yields 24 - 28% of weight as meat			
Soft	Mya arenaria	New England Middle Atlantic Pacific	1 bushel yields 7 to 20 lbs. of meats	200 to 700 per gal.	-	-
Crabs: Hard	Callinectes sapidus	Atlantic & Gulf	3 - 6 lbs. per doz.	-	-	1 and 5 lb. cans
Hard	Cancer magister	Pacific	20 - 22 lbs. per doz.	-	-	
Soft	Callinectes sapidus	Chesapeake Middle Atlantic South Atlantic & Gulf	1¾ - 4½ lbs. per doz.	-	-	-
Lobsters	Homarus americanus	New England Middle Atlantic	1 - 4 lbs. each	-	-	1 lb. cans
Oysters: Eastern	Ostrea virginica	Atlantic & Gulf	1 bushel yields 3 to 8 lbs. of meat.	150 to 300 per gal.	-	-
Pacific	Ostrea gigas	Pacific	Yields 10 - 14% of weight as meat.	80 to 240 per gal.	-	-
Scallops, sea	Pecten magellanicus	New England Middle Atlantic	-	100 to 200 per gal.	-	-
Shrimp	Peneus setiferus Peneus brasiliensis	Gulf & Atlantic	-	-	16 - 70 per lb.	1 and 5 lb. cans
Shrimp	Pandalus species Pandalopsis species Crangon species	Pacific				

NOTE.--Frozen shrimp and sea scallops usually are available throughout the year.

Seasons

Seasonal variations in the supply of fresh fishery products in a number of the more important sections of the nation may be readily determined by referring to the following tables.

Large areas are covered by the tables in some instances. In others they are limited to single cities. In the latter case, however, these cities are important markets, distributing centers or landing ports. The seasonal variations indicated in their receipts usually hold true for the surrounding territory.

For each variety received the month in which the largest receipts occurred has been given a value of 100. Receipts of this variety during the remaining months have been expressed in percentages of the largest month or 100. The relative volume of each month's receipts is immediately ascertainable merely by noting the relation of its index number to 100. An index number for an average month also has been included.

The nearer the index number is to 100 the greater the available supply and, usually, the more reasonable the price. In general, it should prove particularly advantageous to purchase a specific fresh fishery product whenever the index number is higher than the average for that variety.

The volume of frozen fishery products available is largely independent of seasonal variations. Consequently, the sectional and city tables list fresh fishery products only.

Frozen fish and shellfish of most of the species listed in the tables may be obtained in quantity throughout the year and are more widely distributed than the fresh product.

Supplies of frozen fishery products are built up during the peak of the runs and, for most varieties, reach a maximum late in the year. The final table indicates the relative volume of frozen stocks of fishery products for the country as a whole.

New York, N. Y.

Item	Largest month	Percentage of largest month's receipts and landings												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
SALT-WATER FISH	Lbs.													
Bluefish	405,243	100	62	49	55	13	12	18	13	37	37	11	37	37
Butterfish	1,225,458	28	8	46	65	85	100	55	59	64	36	24	31	50
Cod	2,185,175	79	98	97	83	69	60	57	81	88	100	83	91	82
Croaker	387,063	23	30	11	68	100	87	90	78	87	63	28	15	57
Flounders:														
Blackback	2,069,072	13	8	10	52	100	92	72	51	64	70	58	42	53
Fluke	777,527	43	86	100	23	22	35	35	22	27	6	2	2	34
Gray sole	327,438	55	100	90	76	68	77	65	49	35	46	32	43	61
Lemon sole	277,356	56	39	10	15	99	100	59	40	28	59	54	81	53
Yellowtail (Dab)	3,287,149	100	82	85	79	28	23	32	47	53	61	55	93	62
Haddock	1,978,505	37	65	53	67	84	77	100	68	63	50	34	36	61
Hake	257,573	28	18	9	17	39	74	100	70	68	92	65	22	50
Halibut	749,350	1	7	3	69	83	73	100	63	94	29	*	1	44
Kingfish (Kg mkrl)	243,142	100	85	62	41	-	-	-	-	-	-	4	57	58
Mackerel	2,331,314	-	-	-	15	100	84	72	70	52	62	27	12	55
Pollock	457,407	83	63	31	14	60	32	22	28	49	88	86	100	55
Salmon:														
Chinook (King)	357,192	-	-	5	32	69	84	100	50	37	27	-	-	50
Silver	241,421	-	-	-	-	6	3	57	71	89	100	32	-	50
Scup	995,167	88	74	85	86	100	77	82	79	57	45	20	16	67
Sea bass	382,923	48	100	57	57	52	81	68	35	54	30	20	30	53
Sea trout, gray	445,366	4	5	4	3	94	63	56	100	66	56	8	13	39
Shad	2,502,410	*	1	7	56	100	6	-	-	-	*	*	1	19
Smelt	284,103	53	75	100	64	-	-	-	-	5	40	58	65	58
Spanish mackerel	640,688	100	82	21	30	-	-	-	-	-	2	10	38	40
Striped bass	231,428	14	64	53	100	54	24	13	15	13	41	52	31	39
Swordfish	183,399	-	-	-	-	-	1	35	100	53	-	-	-	47
Tilefish	115,849	29	47	54	75	100	87	35	-	17	36	32	33	50
Whiting	843,161	9	9	35	39	81	94	93	85	87	97	100	74	67
SHELLFISH														
Clams:														
Hard	2,166,080	98	98	89	77	93	83	100	93	94	92	82	94	91
Soft	159,435	76	76	100	65	69	58	69	64	72	94	89	75	76
Crabs:														
Hard	274,715	14	8	*	4	7	17	41	66	100	71	59	35	35
Soft	269,901	-	-	-	5	33	75	100	94	51	9	-	-	52
Crab meat	101,366	34	24	39	47	66	100	97	95	71	74	58	52	63
Lobsters	560,156	46	46	44	48	78	100	77	81	63	65	67	60	65
Oysters, shell	1,625,550	72	81	79	63	-	-	-	-	67	92	89	100	80
Oysters, shucked	166,039	87	98	80	47	-	-	-	-	70	91	86	100	82
Scallops:														
Bay	67,340	17	14	6	-	-	-	7	22	98	100	50	51	41
Sea	591,633	30	37	16	38	85	100	97	87	74	75	55	46	62
Shrimp	1,944,495	32	30	42	49	68	69	74	79	75	100	73	56	62

* Less than ½ percent.

NOTE.--Based mainly on Salt-water Market receipts and landings at New York, N. Y. during 1940.

New England

Item	Largest month	Percentage of largest month's landings												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SALT-WATER FISH	Lbs.													
Cod	7,387,351	56	73	77	39	45	40	96	81	65	90	100	69	69
Cusk	904,647	49	63	44	28	45	23	35	56	65	100	85	72	55
Flounders:														
Blackback	232,270	49	24	23	33	36	39	42	54	100	52	53	53	47
Dab	522,395	50	72	100	59	75	53	45	55	38	42	27	52	56
Gray sole	1,557,595	49	100	53	24	28	25	20	15	14	18	14	26	32
Lemon sole	440,025	11	20	21	28	100	73	70	48	37	28	17	23	40
Yellowtail	1,280,505	26	13	21	32	25	23	29	67	87	78	44	100	45
Haddock	17,406,538	52	62	58	53	56	52	100	77	74	45	29	36	58
Hake	918,175	56	34	21	45	22	44	82	89	72	100	79	52	55
Mackerel	5,967,576	-	-	-	-	8	48	81	100	46	54	9	2	43
Pollock	9,760,175	28	17	12	4	5	11	6	10	18	37	100	81	27
Rosefish	10,489,265	62	55	43	19	52	94	100	84	77	83	59	70	67
Swordfish	344,488	-	-	-	-	-	1	68	100	61	-	-	-	57
Whiting	5,756,480	-	1	-	-	3	43	73	100	51	15	4	-	36
Wolffish	128,531	69	87	56	81	100	75	68	44	27	31	22	33	58
SHELLFISH														
Lobsters*	3,373,460	21	9	7	33	100	74	56	55	50	41	26	42	43
Scallops**	754,541	19	19	2	18	80	100	90	88	61	93	45	49	55

* Includes Maine production and Canadian imports into Boston and Gloucester.

** Includes New Bedford landings.

NOTE.--Based mainly on landings at Boston, Gloucester and Portland during 1940.

Alabama, Mississippi, Louisiana & Texas

Item	Largest month	Percentage of largest month's landings												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SALT-WATER FISH	Lbs.													
Drum:														
Black	27,900	54	100	55	18	24	5	26	12	-	1	13	14	27
Red (Redfish)	49,370	92	100	36	16	33	10	12	13	6	35	13	16	32
Groupers	37,120	32	16	33	41	75	44	56	100	71	68	65	51	54
Mullet	169,640	41	19	31	27	43	45	73	59	44	100	76	67	52
Sea trout, spotted	59,200	100	15	7	10	17	21	30	14	5	32	15	23	24
Snapper, red	246,930	52	55	43	69	65	46	46	64	55	100	83	85	64
FRESH-WATER FISH														
Catfish	144,950	21	35	76	100	73	40	40	57	27	42	44	40	50
Gaspergou (Sheepshd)	38,245	12	39	100	58	43	57	53	57	53	20	6	10	42
SHELLFISH														
Crabs, hard	1,818,470	5	5	19	61	100	95	95	95	49	64	51	22	55
Crab meat	224,426	6	5	31	52	100	79	66	74	34	45	35	12	45
Oysters, shell	32,411*	91	74	98	43	17	4	4	4	50	100	90	98	56
Shrimp, headless	4,184,750	17	26	41	58	92	53	39	26	66	100	52	51	52

* State barrels.

NOTE.--Based mainly on landings in the more important ports in Alabama, Mississippi, Louisiana, and Texas during 1940.

Chicago, Ill.

Item	Largest month	Percentage of largest month's receipts												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
FRESH-WATER FISH	Lbs.													
Blue pike	113,339	-	-	-	11	100	79	13	3	4	2	24	2	26
Catfish & bullheads	76,936	42	36	36	52	98	90	100	67	56	86	68	43	65
Lake herring	778,270	28	37	31	24	35	35	27	16	9	37	100	76	38
Lake trout	747,474	37	29	45	65	89	68	63	47	72	100	97	52	64
Pickerel (Jacks)	78,543	16	63	21	78	74	100	26	14	35	68	35	24	46
Sauger	376,940	87	98	56	16	5	10	16	2	42	59	27	100	43
Sheepshead	152,259	33	30	45	37	100	75	51	20	40	68	74	86	55
Smelt	769,599	3	34	56	100	8	4	7	6	5	2	3	2	19
Whitefish	406,290	61	81	67	32	65	72	99	54	56	100	81	49	68
Yellow perch	320,212	61	53	48	59	90	58	100	93	96	98	67	90	76
Yellow pike	288,088	44	30	21	90	100	56	53	39	47	65	35	43	52
SALT-WATER FISH														
Halibut	617,280	-	-	-	66	95	84	100	91	88	35	-	-	80
Mackerel	52,462	2	22	14	26	100	66	63	58	75	45	34	25	44
Salmon:														
Chinook (King)	86,770	-	-	-	5	85	100	50	23	2	15	-	-	40
Silver	105,600	-	-	-	-	1	9	81	100	90	49	5	-	48
Snapper, red	46,718	25	5	9	14	47	44	35	10	32	50	91	100	38
Whiting	66,351	44	63	100	21	23	52	12	18	63	20	19	46	40
SHELLFISH														
Clams, hard	57,410	33	68	26	19	31	35	19	23	24	22	62	100	38
Crab meat	13,583	50	18	34	42	66	70	88	100	75	84	63	49	61
Oysters, shucked	255,027	100	86	35	7	-	-	-	-	25	65	90	97	63
Scallops, sea	115,780	7	4	7	8	100	73	54	20	9	2	18	27	27
Shrimp	1,064,911	17	18	47	49	73	75	42	26	46	100	56	63	51

NOTE.--Based mainly on Wholesale Market Receipts at Chicago during 1940.

Florida

Item	Largest month	Percentage of largest month's shipments												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SALT-WATER FISH	Lbs.													
Bluefish	422,844	86	50	37	37	4	*	*	**	**	5	2	100	32
Drum, red	13,372	48	61	58	27	38	74	26	**	**	100	29	36	50
Groupers	35,646	16	2	14	9	31	100	53	**	**	55	38	42	36
Kingfish (Kg mkrl)	412,201	81	100	87	23	*	*	-	**	**	-	2	83	47
Kingwhiting (Kgfsh)	81,485	45	61	100	70	7	*	1	**	**	4	11	21	32
Mullet	2,214,796	29	49	40	47	38	41	55	**	**	100	99	30	53
Sea trout, spotted	135,939	63	41	52	71	61	28	27	**	**	100	96	83	62
Snapper, red	33,870	100	47	21	63	33	75	25	**	**	99	30	54	55
Spanish mackerel	956,055	100	59	29	30	*	*	1	**	**	2	8	50	28
SHELLFISH														
Crab meat***	59,800	41	12	10	9	4	13	96	97	67	100	67	58	48
Shrimp, headless	740,815	53	35	28	15	10	6	16	44	23	34	53	100	35
FRESH-WATER FISH														
Catfish & bullheads	38,213	56	82	100	83	54	61	53	**	**	68	64	74	69

* Less than ½ percent. ** Data not available. *** Express shipments.

NOTE.--Based mainly on truck shipments from Florida during 10 months of the 1939-1940 season. Shipments from areas west of Cedar Keys are incomplete.

Seattle, Wash.

Item	Largest month	Percentage of largest month's landings and receipts												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SALT-WATER FISH	Lbs.													
Flounders:														
"Sole" & other	864,647	44	32	22	27	30	43	68	95	100	76	18	23	48
Halibut	3,647,293	-	-	-	82	84	86	100	57	65	42	-	-	74
"Lingcod"	416,871	58	70	29	47	50	80	100	96	51	25	45	63	59
Rockfishes	131,887	61	100	83	49	29	23	20	24	47	44	56	77	51
Sablefish	850,226	-	5	-	-	-	2	11	28	77	100	51	4	35
Salmon:														
Chinook (King)	2,003,495	-	1	5	15	20	32	100	90	60	15	-	-	38
Chum (Fall)	2,549,931	2	2	-	-	-	-	-	-	-	52	100	9	33
Pink*	352,134	-	-	-	-	-	-	1	76	100	2	-	-	45
Silver	2,022,738	-	-	-	-	1	11	40	47	100	39	6	1	31
Smelt:														
Eulachon	89,000	8	50	100	-	-	-	-	-	-	-	-	-	53
Silver	74,766	26	6	4	1	39	86	98	100	74	58	94	55	54
SHELLFISH														
Clams, hard (meats)	45,249	100	86	97	95	5	-	-	-	85	79	77	81	78
Crabs	195,184	97	100	98	86	77	61	66	71	72	88	92	80	82
Oysters, Pacific:														
Shucked	32,603	64	70	59	59	25	14	29	41	100	16	19	32	45
Shrimp meat	71,600	100	66	52	7	57	62	52	57	57	80	55	60	58

* 1939.

NOTE.--Based mainly on Exchange landings and wholesale receipts during 1940.

California

Item	Largest month	Percentage of largest month's landings												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SALT-WATER FISH	Lbs.													
Barracuda	560,084	25	41	87	100	74	91	55	59	50	63	49	37	61
Flounders:														
"Calif. halibut"	149,576	56	77	100	52	50	42	81	43	47	41	47	43	57
"Sole" & other	1,592,770	46	100	69	56	60	56	51	56	58	65	60	40	60
Rockfishes	562,309	49	41	100	71	68	48	40	28	25	30	52	39	49
Salmon:														
King & silver	1,007,307	2	2	5	10	55	51	100	30	14	-	*	32	25
Sea bass, white	298,946	2	1	10	21	13	12	20	21	100	69	46	18	28
Shad	821,379	-	*	13	47	100	-	-	-	-	-	-	-	40
Smelt	61,789	100	97	97	57	37	50	53	71	56	63	46	42	64
Swordfish	238,879	-	-	-	-	-	13	89	100	38	9	-	-	50
SHELLFISH														
Crabs	784,142	61	56	91	97	100	89	90	63	2	-	49	60	69
Shrimp	224,913	37	24	33	30	42	100	87	51	47	34	24	14	44
Oysters, Pacific	196,808	65	100	91	89	61	41	33	37	56	88	83	69	68

* Less than ½ percent.

NOTE.--Based mainly on monthly commercial fish landings in California during 1939 as reported by the State Division of Fish and Game.

U. S. Cold Storage Holdings

Item	Largest month	Percentage of largest month's holdings												Avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
SALT-WATER FISH	Lbs.													
Bluefish	387,927	100	80	51	32	26	20	18	14	13	22	19	70	39
Butterfish	970,421	72	58	41	35	29	54	55	57	70	94	100	97	63
Cod, haddock, hake & pollock	1,267,681	89	79	65	54	46	48	65	78	91	92	100	99	76
Croakers	1,813,914	39	27	10	4	10	65	82	100	88	83	72	68	54
Fillets:														
Cod	3,001,267	87	67	44	40	18	23	37	53	57	60	89	100	56
Haddock	8,394,847	60	49	32	27	21	25	44	75	95	100	92	76	58
Pollock	6,119,650	100	81	52	31	23	12	9	6	6	7	35	85	37
Rosefish	4,609,502	31	19	12	26	56	90	100	93	45	36	32	30	48
Flounders	1,141,908	100	93	59	47	46	46	56	59	53	75	85	87	67
Halibut	15,660,523	48	36	23	15	23	46	76	89	92	100	79	69	58
Herring, sea & river	2,152,100	42	30	54	46	76	97	87	76	70	69	68	100	68
Mackerel, except Spanish	9,032,457	68	47	25	10	16	25	75	88	99	100	99	87	62
Sablefish	3,089,004	78	69	49	39	26	21	18	31	45	73	100	96	54
Salmon:														
Chinook (King)	3,563,513	61	50	31	22	17	20	34	47	70	95	100	88	53
Fall and pink	2,734,465	100	87	62	52	40	34	23	30	42	49	91	96	59
Silver	5,761,978	66	47	20	12	5	4	13	38	83	100	92	85	47
Scup (Porgy)	1,051,486	40	100	87	73	71	74	75	91	88	34	28	24	65
Sea trout	467,293	32	22	12	10	39	52	61	90	100	96	91	66	56
Shad and roe	632,693	76	76	60	52	95	100	93	94	91	86	86	81	82
Smelt	2,161,247	69	92	100	81	95	90	87	80	78	70	68	57	81
Steelhead trout	522,681	79	69	71	64	47	44	46	66	71	100	86	78	68
Swordfish	1,076,629	66	45	23	10	24	23	32	65	100	90	54	52	49
Whiting	10,842,749	80	58	29	11	11	27	61	87	100	97	94	89	62
FRESH-WATER FISH														
Blue pike & sauger	1,834,976	33	66	100	47	26	15	10	5	6	9	9	14	28
Catfish and bullheads	393,997	100	76	51	29	27	31	47	51	34	45	84	91	56
Lake herring and chubs	2,968,496	100	78	47	34	30	28	31	36	33	35	43	93	49
Lake trout	1,215,628	88	68	48	28	27	24	30	31	26	45	81	100	50
Pickerel (Jacks)	276,791	82	88	100	76	83	85	76	63	43	67	79	75	76
Sturgeon and spoonbill cat	901,335	74	71	68	61	47	51	87	91	94	99	100	90	78
Suckers	245,007	17	13	9	6	11	22	32	50	56	59	75	100	38
Whitefish	2,372,816	86	86	80	61	50	38	53	72	75	93	100	97	74
Yellow perch	589,870	97	85	47	23	27	23	26	44	59	79	100	98	59
Yellow pike	368,471	46	67	100	82	76	60	84	59	31	35	50	53	62
SHELLFISH														
Scallops	1,876,403	80	61	34	20	24	44	62	84	87	100	99	93	66
Shrimp	7,421,727	77	69	42	20	19	32	37	20	28	49	78	100	48

NOTE.--Based on seasonal holdings in 1940-1941. Imported fishery products included.

CONTAINERS

In general, a better product is received, prices are lower and shipment is expedited if the usual commercial fishery containers are requested.

Fishery containers are not completely standardized. However, most of the more important fresh and frozen fishery products generally are packed in one or more of the usual types of unit containers listed below.

Form of Product	Net Weight and Container
FRESH FIN-FISH	
Whole, drawn and dressed:	
Most fish — Fresh-water	50 and 100 lb. boxes.
Most fish — Salt-water	100, 125, 150 and 200 lb. boxes. 250 lb. sugar or flour barrels. 75 and 150 lb. tight barrels.
Some small fish — Fresh-water	10 to 20 lb. packages.
Some small fish — Salt-water	10 to 30 lb. packages.
Fillets, steaks and pan-dressed — Fresh-water	25 lb. tins.
Fillets, steaks and pan-dressed — Salt-water	10, 15, 20, 25 and 30 lb. tins.
FROZEN FIN-FISH	
Whole, drawn and dressed:	
Most fish	50, 100, 150 and 200 lb. boxes.
Some small fish	5, 10, 15, 20 and 25 lb. bxs. & ctns.
Fillets, steaks and pan-dressed	5, 10, 15, 20 and 25 lb. bxs. & ctns.
SHELLFISH	
Clams and oysters (shucked)	1 gal., ½ gal., and 1 qt. tins.
Crab and shrimp meat (cooked)	1 lb. and 5 lb. tins.
Scallops, sea (shucked) fresh and frozen	1 gal. pkgs., 5 and 10 lb. cartons, and 30 to 40 lb. bags.
Shrimp, headless:	
Fresh	100 and 125 lb. boxes.
Frozen	5 and 10 lb. cartons.

EDIBLE PORTION

Servings of fresh and frozen fishery products generally are based on portions ranging from 1/3 to 1/2 pound per person.

The edible portion varies in amount with the form in which the fishery product is purchased, the season, and the variety of fish. The percentages in the table below are only approximate averages, particularly for fin-fish.

Form in which Purchased	Production area	Edible Portion		
		Uncooked	Cooked	Waste
FIN-FISH		%	%	%
Whole or round	All	45	-	55
Drawn (eviscerated only)	All	48	-	52
Dressed (eviscerated, head and fins removed)	All	67	-	33
Steaks or sections	All	84	-	16
Fillets	All	100	-	0
SHELLFISH				
Live in shell				
Clams, hard:	New England	14 - 20	-	80 - 86
	Middle Atlantic	10 - 12	-	88 - 90
	Chesapeake	7 - 8	-	92 - 93
	South Atlantic	6 - 8	-	92 - 94
	Pacific	24 - 28	-	72 - 76
Clams, soft:	New England	23 - 33	-	67 - 77
	Middle Atlantic	27 - 32	-	68 - 73
Crabs, hard: Blue	Atlantic and Gulf	-	10 - 20	80 - 90
Crabs, hard: Dungeness	Pacific	-	24	76
Lobster	New England	-	36	64
Oysters: Eastern	New England	9 - 11	-	89 - 91
	Middle Atlantic	8 - 11	-	89 - 92
	Chesapeake	6 - 7	-	93 - 94
	South Atlantic	4 - 6	-	94 - 96
	Gulf	5 - 7	-	93 - 95
Oysters: Pacific	Washington	10 - 14	-	86 - 90
	Oregon	12	-	88
Shucked				
Clams, oysters & bay and sea scallops	All	100	-	0
Headless				
Shrimp	South Atlantic & Gulf	-	56	44
Cooked meat				
Crab, lobster and shrimp	All	-	100	0

FAT, COOKING METHODS & FUEL VALUE

Fish and Wildlife Service name	Fat Content of Edible Portion			Suggested Methods of Cooking					Fuel Value of Edible Portion in Calories per pound
	Very low	Fairly low	High but variable	Broil	Bake	Boil or Steam	Deep fat or Pan fry	Chowder	
SALT-WATER FISH									
Alewife	-	x	-	x	-	x	x	-	550
Barracuda	-	-	x	x	x	x	-	-	510
Bluefish	-	x	-	x	x	-	x	-	535
Blue runner	-	x	-	x	x	-	x	-	445
Butterfish	-	-	x	x	-	-	x	-	745
Cod	x	-	-	x	x	x	-	x	315
Croaker	-	x	-	x	x	x	x	x	415
Cusk	x	-	-	x	x	x	x	x	315
Drum, red	-	x	-	-	x	x	-	x	345
Eel, common	-	-	x	x	-	-	x	-	710
Flounders:									
Blackback (Winter)	x	-	-	x	x	x	x	x	290
Fluke (Summer)	x	-	-	x	x	x	x	x	290
"Sole" (Pacific)	-	x	-	x	x	x	x	x	345
Southern	-	x	-	x	x	x	x	x	395
"California halibut"	-	x	-	x	x	x	x	x	415
Groupers	-	x	-	x	x	x	-	x	370 - 395
Haddock	x	-	-	x	x	x	-	x	325
Hake	x	-	-	-	x	x	-	x	340
Halibut	-	-	x	x	x	x	-	x	550
Herring, sea (AC &PC)	-	-	x	x	x	-	-	-	620 - 825
Horse mackerel (PC)	-	-	x	x	-	x	-	-	620
Kingfish (PC)	-	x	-	x	x	-	x	-	360
Kingfish (King mkrl)	-	-	x	x	x	-	-	-	900
King whiting (Kingfish)	-	x	-	x	-	x	x	x	455
"Lingcod"	-	x	-	x	x	x	-	-	355
Mackerel (AC & PC)	-	-	x	x	x	-	-	-	715 - 900
Mullet	-	x	-	x	x	x	-	x	530
Pollock	-	x	-	x	x	x	-	x	425
Pompano	-	-	x	x	x	x	-	-	730
Rockfish (PC)	-	x	-	x	x	-	-	-	375
Rosefish	-	x	-	x	x	-	x	-	455
Sablefish	-	-	x	x	x	x	-	-	900
Salmon:									
Atlantic	-	-	x	x	x	x	-	-	955
Chinook (King)	-	-	x	x	x	x	-	-	990
Chum (Fall)	-	-	x	x	x	x	-	-	600
Pink	-	-	x	x	x	x	-	-	625
Silver	-	-	x	x	x	x	-	-	725
Scup (Porgy)	-	x	-	x	x	-	x	-	520
Sea bass:									
Black (AC)	-	x	-	x	x	x	x	x	395
White (PC)	-	-	x	x	x	-	x	-	410
Sea trout:									
Gray	-	x	-	x	x	-	x	-	390
Spotted	-	x	-	x	x	x	x	x	455

Fat, Cooking Methods & Fuel Value

Fish and Wildlife Service name	Fat Content of Edible Portion			Suggested Methods of Cooking					Fuel Value of Edible Portion in Calories per pound
	Very low	Fairly low	High but variable	Broil	Bake	Boil or Steam	Deep fat or Pan fry	Chowder	
SALT-WATER FISH--Contd.									
Shad	-	-	x	x	x	-	-	-	740
Sheepshead (AC)	-	x	-	x	x	-	x	-	490
Smelt:									
Atlantic	-	x	-	x	-	-	x	-	395
Pacific	-	-	x	x	-	-	x	-	900
Snapper, red	-	x	-	x	x	x	-	-	395
Spanish mackerel	-	-	x	x	x	-	x	-	900
Spot	-	x	-	x	-	-	x	-	455
Striped bass	-	x	-	x	x	-	x	-	455
Sturgeon	-	x	-	x	x	-	-	-	405
Swordfish	-	x	-	x	x	-	-	-	520
Tautog	-	x	-	x	x	-	x	-	380
Tilefish	-	x	-	x	x	x	-	-	340
Tomcod (AC)	-	x	-	x	x	-	x	-	330
Tuna (all kinds)	-	-	x	x	x	x	-	-	570 - 770
White perch (AC)	-	x	-	x	x	-	x	-	515
Whiting	-	x	-	x	x	-	x	-	340
Wolffish	-	x	-	x	x	x	x	x	455
Yellowtail (PC)	-	-	x	x	x	-	x	-	600
FRESH-WATER FISH									
Blue pike	-	x	-	x	x	-	x	-	360
Buffalofish	-	x	-	x	x	-	x	-	430
Carp	-	x	-	x	x	x	x	-	420
Catfish	-	-	x	-	-	x	x	x	445
Lake herring	-	x	-	x	x	-	x	-	615
Lake trout	-	-	x	x	x	x	x	-	745
Pickerel (Jacks)	-	x	-	x	x	-	x	x	360
Sauger	-	x	-	x	x	-	x	-	355
Sheepshead	-	x	-	x	x	x	-	-	445
Smelt	-	x	-	x	x	-	x	-	395
Suckers	-	x	-	x	x	-	x	-	420
Whitefish	-	-	x	x	x	-	x	-	680
Yellow perch	-	x	-	x	x	-	x	-	370
Yellow pike	-	x	-	x	x	-	x	-	360
SHELLFISH									
Clams (Hard & Soft)	x	-	-	x	x	x	x	x	345 - 355
Crabs (AC & PC)	x	-	-	x	x	x	x	-	370
Lobster, common	x	-	-	x	x	x	-	x	380
Oysters	x	-	-	x	x	x	x	x	365
Scallops	x	-	-	x	x	x	x	x	335
Shrimp	x	-	-	-	x	x	x	x	370

AC - Atlantic Coast. PC - Pacific Coast.

METHODS of COOKING

Keep Fresh Fishery Products Well Iced or in a Refrigerator.

Fresh fish should be kept chilled until ready for cooking. Because of its delicate structure it spoils readily if not carefully handled.

Keep Frozen Fish Hard Frozen.

Do not thaw frozen fish until ready to prepare for cooking. Never permit frozen fish to thaw and freeze again.

Do not "Trim" Fins.

They should be "run" by cutting into the flesh on each side at the base of the fins. Fins and fin bones then may be withdrawn practically in their entirety either immediately or after cooking.

Some Cuts Save Time in Preparation and Eliminate Waste.

Fillets, steaks and pan-dressed fish are ready for immediate use without waste, as are shucked shellfish and cooked shellfish meats.

Packaged Fishery Products Usually are Lightly Salted.

The moisture proof wrapper around fillets and steaks generally indicates this fact, stating that additional salt is not required.

Chill Hands Thoroughly in Cold Water before Touching Fish.

This will prevent any odor of raw fish from clinging to the hands.

Cleanse the Hands by Washing with Hot Water and Salt.

Do not use soap until after rinsing off the salt.

For Dishes Use a Hot Strong Solution of Salt in Water.

Used without soap, this solution will remove fish odors from dishes.

METHODS of COOKING

Suggested Methods of Cooking Various Cuts of Fin-Fish

Method of Cooking	Fat Content		Drawn 1/	Dressed 1/	Pan Dressed	Steaks	Fillets
	High	Low					
Bake	x	(2)	x	x	x	x	x
Boil or Steam	(3)	x	x	x	-	x	x
Broil	x	x	x	x	x	x	x
Deep fat fry	x	x	x	x	x	x	x
Pan-fry	x	x	x	x	x	x	x
Chowder	-	x	x	x	-	-	x

1/ Drawn and dressed fish usually are baked in the form purchased, but are split or cut in portions for the other methods of cooking.
2/ Lean fish require more care in basting.
3/ Fat fish are more apt to fall apart.

Suggested Methods of Cooking Various Kinds of Shellfish

Method of Cooking	Live in Shell				Shucked	Headless	Cooked Meat
	Clams	Crabs	Lobsters	Oysters	Clams Oysters Scallops	Shrimp	Crab Lobster Shrimp
Raw	x	-	-	x	x*	-	x
Bake	x	-	x	x	x	x	x
Boil or Steam	x	x	x	x	x	x	x
Broil	x	x	x	x	-	-	-
Deep fat fry	-	x	-	-	x	x	x
Pan-fry	-	x	-	-	x	x	x
Chowder	-	-	-	-	x	x	x

* Except scallops.

Baked Fish

Preferred cuts

Fillets or steaks.
Pan-dressed.
Drawn or dressed fish.
Split or cut portions.

Fat or lean fish may be used.
Lean fish require more care in basting.

SPENCER HOT OVEN BAKING

This method of cooking retains the full flavor of the fish, minimizes cooking odors and the baking pan can be more easily cleaned. Directions should be followed exactly.

1. Place serving portions of fish on extreme left.
2. Next place a bowl of heavily salted milk.

   Salted milk is made in the proportion of 1 Tbsp. salt to 1 C. milk.

3. Next place a pan of finely sifted bread crumbs.

   Flour, cornmeal or cracker crumbs will brown only in splotches where fat touches them, while bread crumbs, with the addition of a little oil or fat, will brown uniformly.

4. Next place an oiled baking pan for cooking.
5. Finally a cup of oil with a pastry brush or swab.

   Melted fat may be used.

6. With left hand dip a piece of fish into bowl of milk and toss into pan of crumbs.

   Keep the left hand for wet work.

7. With right hand cover the fish with crumbs.

   Keep the right hand for dry work. In this way all crumbs can be used without becoming dampened.

8. Place in baking pan.

9. Sprinkle each piece of fish in pan with a little oil.

This is the only oil used in cooking. Very thin strips of bacon may be used instead.

10. In a very hot oven, 500° to 600° F., cook 10 minutes.

If heat has been sufficient, the pan will be quite dry underneath the fish and each piece will be beautifully browned on all sides.

11. Do not be afraid of burning.

Never add any water to fish cooked in this quick-oven way.

BAKING DRAWN OR DRESSED FISH

1. Dip fish into salted water and allow to stand 5 minutes.

A solution in the proportion of 2 Tbsp. salt to 1 C. cold water is recommended by the U. S. Fish and Wildlife Service.

2. Drain fish.

3. Slit skin in several places and brush with cooking oil.

4. Lay 2 strips of bacon in greased baking pan.

5. Stuff fish, tie with string and place on strips of bacon.

6. Lay 2 strips of bacon on fish.

7. Place in center of oven and bake 10 minutes at 500° F.

8. Lower temperature to 400° F.

9. Bake 8 to 10 minutes longer.

Boiled & Steamed Fish

Lean fish have less tendency to fall apart when boiled or steamed.

Preferred cuts

Drawn or dressed fish cut into portions. Fillets or steaks.

BOILING

1. Prepare salted water.

   For each pound of fish a solution of 1 quart water and 1½ Tbsp. salt is recommended by the U. S. Fish and Wildlife Service.

2. Place one layer of serving portions in oiled wire basket.

   Fish also may be wrapped in cheesecloth or parchment to hinder breaking up.

3. Place basket in gently boiling salted water.
4. Cook 8 to 12 minutes or until tender.
5. Remove and drain.

STEAMING

1. Prepare salted water.

   A solution made in the proportion of 2 Tbsp. salt to 1 C. water is recommended by the U. S. Fish and Wildlife Service

2. Allow serving portions to stand in salted water from 2 to 8 minutes.

   Time varies with thickness and variety of fish.

3. Place fish one layer deep in a well-oiled steamer.
4. Cook 5 to 12 minutes or until tender.

Broiled Fish

Use fat or lean fish.

Preferred cuts

Fillets or steaks.
Pan-dressed.
Drawn or dressed fish.
Split or cut portions.

1. Prepare salt solution.

   A solution made in the proportion of 2 Tbsp. salt dissolved in 1 C. water is recommended by the U. S. Fish and Wildlife Service.

2. Dip fish in salt solution and allow to stand 3 minutes.

   Very thin fish should stand 1 minute, and very thick fish 5 to 8 minutes.

3. Oil the heated broiler pan.

4. Brush fish with oil.

5. Place fish on broiler pan about 2 inches below heat.

   If skin is on fish, it should be on top.

6. Cook until skin is covered with dark brown bubbles.

   At the end of 5 minutes the skin should begin to bubble and turn brown.

7. Turn just once.

8. Baste several times.

   Basting in the proportion of ¼ C. melted butter or cooking oil with ¼ tsp. pepper (with other seasoning added if desired) is recommended by the U. S. Fish and Wildlife Service.

9. Cook until a nice brown but do not overcook.

   Steaks and skinned fillets should begin to brown and cook in about the same time as fish with skin on. From 6 to 12 minutes is required, depending upon the thickness of the fish.

Deep Fat Fried Fish

Use fat or lean fish.

Preferred cuts

Fillets or steaks.
Dressed or drawn fish split or cut into serving portions.

1. Use a deep kettle provided with a frying basket.

   This simplifies removal of cooked fish.

2. Heat fat to a temperature of 385° - 400° F.

   A piece of bread will brown in 20 to 25 seconds at this temperature.

3. Dip serving portions of fish in water.

4. Cover well with dry ingredients.

   A mixture in the proportion of ½ C. medium fine unbolted yellow cornmeal to ½ C. flour and 1-1/3 Tbsp. salt is recommended by the U. S. Fish and Wildlife Service.

5. Put one layer of fish in the frying basket.

   More than one layer will lower the temperature of the fat.

6. Cook to an even golden brown.

   This will take from 4 to 8 minutes depending upon the variety of the fish.

Pan-Fried Fish

Use fat or lean fish.

Preferred cuts

Fillets or steaks.
Pan-dressed.
Drawn or dressed fish split or cut into serving portions.

1. Heat fat over a slow fire in a heavy cast metal pan.

   Any clean, fresh fat may be used for frying. Vegetable fats smoke at higher temperatures than animal fats and are preferred by many.

2. Dip serving portions of fish in water.

3. Cover well with dry ingredients.

   A mixture in the proportion of ½ C. medium fine unbolted yellow cornmeal to ½ C. flour and 1-1/3 Tbsp. salt is recommended by the U. S. Fish and Wildlife Service.

4. At first sign of fat smoking, place fish in pan.

5. Cook 3 minutes.

6. Cover pan and remove from fire for about 2 minutes.

   This permits fish to cook in its own steam.

7. Remove cover, turn fish and return to fire.

8. Cook 3 minutes longer.

   Fish less than 5/8 inch thick will require a shorter cooking time, while thicker fish will require longer cooking.

Fish or Clam Chowder

Preferred cuts

Lean fish are most suitable.

Fillets.
Clear meat from drawn or dressed fish.

1. Use ingredients in following proportions:

2 lbs. lean fish	1 tsp. salt.
3 C. sliced potatoes.	¼ tsp. pepper.
2/3 C. sliced onions.	1 C. water.
2/3 C. salt pork (fat back) diced into small pieces.	

2. Fry pork to a golden brown in heavy kettle.

3. Add onions and fry to a light yellow color.

4. Add the potatoes.

5. Sprinkle with salt and pepper.

6. Add cup of water.

7. Cook until potatoes are about half done.

8. Add fish (flesh side down).

9. Cook until potatoes are soft.

10. Remove skin from fish and break flesh into coarse flakes.

New England chowder may be made by adding to the ingredients an equal volume of milk and heating thoroughly, but not boiling.

For clam chowder substitute about 1 quart of shucked soft clams or about 25 large hard clams.

Shellfish

CRAB CAKES

1 lb. cooked crab meat
2 eggs
4 Tbsp. melted butter
½ tsp. salt
1/6 tsp. black pepper
Pinch of cayenne pepper
Cooking fat or oil
Fine bread crumbs

1. Mix crab meat, butter, seasoning and enough of egg to mold into small flat cakes.
2. Beat a little water into the remaining egg.
3. Wet cakes with this mixture.
4. Roll cakes in bread crumbs.
5. Fry until rich brown in a heavy frying pan, or deep fat fry at 380°-400° in a well oiled frying basket.

CREAMED OYSTERS

1 qt. oysters
3 C. milk
1 C. cream
2/3 C. butter
3 Tbsp. flour
Salt, pepper and lemon juice to taste

1. Heat milk but do not boil.
2. Heat oysters until edges curl, separate and skim liquor.
3. Sift flour into melted butter in a saucepan and heat. Stir well.
4. Add hot milk and oyster juice together to mixture.
5. Beat mixture until thick and smooth.
6. Add cream, oysters and seasoning, and serve on buttered toast.

FRIED SCALLOPS

1. If scallops are large cut into 3/4 inch cubes.
2. Immerse 3 minutes in salted water, using 1 Tbsp. salt to 1 C. cold water.
3. Drain scallops and dust with pepper if desired.
4. Dip scallops into egg-water mixture and roll in crumbs, using 2 eggs beaten into 4 Tbsp. cold water.
5. Fry in deep fat in well-oiled frying basket at about 380° F. until deep brown.

SHRIMP CREOLE

½ lb. cooked shrimp meat
2 Tbsp. melted butter
1 C. chopped onions
1 C. chopped green pepper
½ chopped clove garlic
1/8 tsp. paprika
1 pt. stewed tomato
Salt and pepper

1. Mix and stir in butter, onion, green pepper and garlic.
2. Let simmer until pepper is tender.
3. Add tomato and seasoning.
4. Boil 5 minutes.
5. Add shrimp and boil 10 minutes longer.

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